Calculus Learning Targets:

(These may change as the year progresses. Also, there may be additional project grades.)

C1. Explain the components of calculus

a. interp of derivative, antideriv, IVT, MVT, FTC

C2. Find the derivative using the definition of a derivative

C3. Find the limit of a function using a variety of methods: a table, graph, algebra

C4. Evaluate infinite limits and find asymptotes

C5. Evaluate the continuity of a function

C6. Graph and derive the derivative of a function (power, radical, rational, trig, exponential, logarithmic, inverse trig) (Prove trig derivatives)

C7. Find the derivative of a function using a variety power, sum, difference, product, and quotient rules

C8. Evaluate the derivative of a function using the chain rule

C9. Apply derivative to physics, economics, and other rates of change

C10. Find a derivative using implicit differentiation

C11. Solve related rates problems

C12. Find local and relative extrema, inc/dec intervals, concavity points

C13. Graph using properties of functions

C14. Solve optimization problems

C15. Apply Rolle’s Theorem and the MVT

C16. Approximate the area under a curve using rectangles, trapezoids, and Simpson’s rule

C17. Find area under a curve using Riemann Sums

C18. Find area under a curve by sketching and integral rules

C19. Evaluate definite integrals (using FTC) and indefinite integrals (including u-sub)

C20. Evaluate integrals using integrating by parts, trig integrals, and partial fractions

C21. Find change, total change, and average value of functions

C22. Find area between two curves

C23. Find the volume for solids of revolution using the disk and shell methods

C24. Solve application problems related to physics, economics, and biology

C25. Apply topics to population growth (project)

C26. Extend classroom topics to new applications (take-homes)